Implementing Evidence-Based Guidelines for Falls Prevention: Observations of Nursing Activities During the Care of Older People with Cognitive Impairment

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ABSTRACT

Background: Evidence-based guidelines assist clinicians in practice but how the guidelines are implemented is less established.

Aim: To describe the nurses' implementation of activities recommended in evidence-based guidelines for falls prevention and care of older person with cognitive impairment.

Methods: Structured observation with a categorical checklist was used. Nursing personnel were recruited from one subacute and two acute wards in two hospitals in one tertiary-level health service in south-eastern Queensland. The data collection instrument identified 31 activities drawn directly from the evidence-based guidelines, which were categorised into six domains of nursing practice: clinical care, comfort, elimination, mobility, nutrition and hydration, and social engagement. Four hour-observation periods, timed to occur across the morning and evening shifts, were conducted over two months.

Results: Nineteen registered nurses, six enrolled nurses and 16 assistants in nursing (N=41) were observed for 155 hours of observation. There was variability in adherence with specific activities, ranging from 21 to 100% adherence. Three categories with highest adherence were 'nutrition and hydration', 'mobilisation safety' and social engagement. Lower adherence was for activities in the clinical, comfort and elimination categories, with lowest adherence in activities of education provision about falls risk, pain assessment, using a clock or calendar to re-orient to time and place, and bowel care.

Linking evidence to action: Nursing care is delivered within a multi-disciplinary team, therefore responsibility for the everyday fundamental care activities known to prevent falls in older people with cognitive impairment requires localised negotiation. A practical guide for preventing in-hospital falls in older people with cognitive impairment, addressing the

interdisciplinary context of practice, is required. Interdisciplinary teams should develop strategies to enhance the implementation of specific care strategies of 'pain assessment' and 'prevention of constipation' in the context of regularly implemented hydration, nutrition and mobilisation care strategies.

KEYWORDS

Adult health/adult care, care delivery system, clinical guidelines, dementia/Alzheimer's/memory loss, descriptive analysis, gerontology/geriatrics, quantitative methodology

INTRODUCTION

In-hospital falls pose a significant economic and operational burden for health services. The increasing volume of safety incidents and harms in hospital are attributed to the ageing population, and the overall number of people living with (often multiple) conditions, which carry some functional, sensory and cognitive impairment (Oliver, 2012). Nurses constitute 41% of the hospital workforce (Australian Institute of Health and Welfare, 2017) and therefore carry significant responsibility for patient safety. Falls are generally recognised as a nurse sensitive outcome (D'Amour, Dubois, Tchouaket, Clarke, & Blais, 2014; Montalvo, 2007). However, evidence for falls as a specific outcome sensitive to nursing care has not been consistently demonstrated (Burston, Chaboyer & Gillespie, 2014; Stalpers, de Brouwer, Kaljouw, Schuurmans, 2015).

Several studies have indicated a strong association between in-hospital falls and older people with cognitive impairment (Harlein, Dassen, Halfens & Heinze, 2009; Hignett, Sands, & Griffiths, 2013). One form of cognitive impairment in older people, delirium, is emerging as another in-hospital complication that may be sensitive to nursing care. Evidence-based delirium care guidelines recommend fundamental clinical and psychosocial interventions to prevent and manage delirium (ACSQHC, 2016; NICE 2010). These fundamental interventions include adequate nutrition and hydration, mobilisation and social engagement (Inouye, Westendorp, & Sacynski, 2014), which are mostly conducted by nurses. Evidence-based guidelines for the care of older people with another form of cognitive impairment, dementia, recommend person-centred approaches (ACSQHC 2014; Guideline Adaptation Committee, 2016; NICE 2016), which are also arguably in the domain of nursing care. People with dementia are at much higher risk of developing delirium (Bail et al., 2013) and the psychosocial care recommendations are similar for both so that these conditions are often bundled into the term 'cognitive impairment' (ACSQHC, 2014).

Cognitive impairment is associated with several hospital-acquired complications (Bail et al., 2013), sometimes called cascade iatrogenesis (Thornlow, Anderson & Oddone, 2009). Fundamental nursing care, attending to nutrition and hydration, mobilisation, elimination, comfort, hygiene, and social engagement may prevent the development of multiple complications (Bail & Grealish, 2016). However, one study found that acute care nurses were spending less than half of their time on direct care activities, and only 13.5% on personal activities (Chaboyer et al., 2008). More recent studies of acute care nurses (Ausserhofer et al., 2014; Kalisch, Tschannen, & Lee, 2012) and patients (Kalisch, Xie & Dabney, 2014) confirm that fundamental care is often missed, with missed nursing care associated with falls (Kalisch et al., 2012). In particular, a mixed methods study of nursing workload, staffing, work environment and patient outcomes identified more nursing hours per patient day was associated with reduced fall rates (Duffield et al., 2011).

In-hospital falls, and particularly falls in older people with cognitive impairment, constitute a significant economic and operational burden for health services and poor outcomes for patients. Nursing practices are recognised as important for falls prevention in caring for older people with cognitive impairment, both delirium and dementia. Given the importance of fundamental nursing care for people with cognitive impairment, the strong association between cognitive impairment and falls, and the rising prevalence of dementia internationally (Prince, Comas-Herrara, Knapp, Guerche, Karagiannidou, 2016), greater understanding of the actual nursing care provided to older hospitalised patients with cognitive impairment is urgent.

BACKGROUND

The risk of falls in older people has led to national evidence-based guidelines that target older people (Australian Commission for Safety and Quality in Health Care

[ACSQHC], 2009; National Institute for Health and Care Excellence [NICE], 2013; Panel on Prevention of Falls in Older Persons, American Geriatrics Society and British Geriatrics Society, 2011). However, most of these guidelines offer limited advice about the prevention of falls in older people with cognitive impairment. Further, evidence-based guidelines for the care of older people with cognitive impairment (ACSQHC, 2014; Guideline Adaptation Committee, 2016; NICE, 2016) do not specifically address in-hospital falls prevention. There is emerging evidence that clinical guidelines implementation is complex for both, falls prevention (Dempsey, 2009; Ireland et al., 2013; Milisen et al., 2013) and care of the older person with cognitive impairment (Adams et al., 2015; Yevchak et al., 2014). Preventing in-hospital falls in older people with cognitive impairment requires attention to practice, specifically to how practice adheres to the guidelines.

While the dominant narrative in nursing emphasises the importance of following evidence-based guidelines in practice, workplace studies suggest that procedures [guidelines] are only one resource used for practitioner action (Suchman, 2007). Taken-for-granted activities are often an active alignment of human and non-human elements to become a stable 'practice', noting that the ordering processes required to keep the practice going are fragile (Law, 1994). A study of airplane pilots found that in emergencies and other non-normal situations, pilots drew upon a range of resources, using only fragments of the procedures and checklists as resources in their actions (Carim, Saurin, Havinga, Rae, Dekker, & Henriqson, 2016). From this perspective, nursing practice is inseparable from the networks that produce it including the: number of staff rostered onto a shift, availability of equipment, accessibility of information, and presence of other staff such as doctors, allied health, cleaner, administrator, wards men, and kitchen staff. Enacting specific activities for each patient is contingent upon alignment of elements from multiple sources. In situations that are more complicated, with greater variability than anticipated by the guidelines, such as preventing

falls in people who are cognitively impaired, the ordering processes required to keep the practices going may not align, resulting in more patient falls. Identification of those activities that may be more fragile and therefore evade consistent enactment is required to focus our attention on the ordering processes used to enact guideline recommendations (activities).

METHODS

Aim

The aim of the study was to describe the nurses' implementation of activities recommended in evidence-based guidelines for falls prevention and for care of older people with cognitive impairment.

Design

This observational study used a category system, with a specific checklist, to conduct structured observations of nursing care for hospitalised older people with cognitive impairment. A category system designates qualitative behaviours transpiring in the observational setting (Polit & Beck, 2017). The research question guiding this study is: How frequently do nurses undertake evidence-based activities for falls prevention and cognitive impairment management in older patients who are cognitively impaired?

Setting & sample

One subacute and two acute wards from two hospitals in a south-eastern Queensland region health service provided the setting for the study. This health service had a strong quality improvement framework for falls prevention, inclusive of an executive lead, interdisciplinary committee, appointed program lead, and comprehensive prevention and investigation activities. The program related to cognitive impairment was in an early, more embryonic stage.

Consenting registered and enrolled nurses and consenting assistants in nursing, health service employees who were trained to provide close observation of individual patients, working in the three wards were invited to participate. Outside staff, such as private agency staff, were not included in the study. Staff who worked permanent night duty were excluded. A convenience sampling strategy (Polit & Beck, 2017) was used, where those nurses who were available on days when there were patients with cognitive impairment were recruited into the study.

Observation instrument

The structure observation instrument in this study consisted of 31 activities, drawn from the evidence-based guidelines, *A Better Way to Care (*ACSQHC, 2014) and *Preventing Falls and Harm from Falls in Older People Best Practice Guidelines for Australian Hospitals* (ACSQHC, 2009). These were grouped into six domains: clinical care, comfort, social engagement, mobility, nutrition and hydration, and elimination. Content validity for the instrument was established through a panel of experts familiar with the guidelines, including three clinical experts and three researchers in the field.

A member of the research team (DS), whose expertise was in the care of older people, and was knowledgeable about the various guidelines and was involved in the development and revisions of the data collection instrument, trained and assessed the inter-rater reliability of the RAs. Simultaneous recording of observations by this expert and each RA was undertaken. The inter-rater reliability was 70% agreement with RA1 and 90% agreement with RA2.

Nursing activities were recorded on the observation instrument as (1) applicable and completed; (2) applicable and not completed or (3) not applicable. An example of an intervention rated as ‘not applicable’ would be ‘insert a hearing aid’ for someone who can

hear and has no hearing aid. While engagement in the specific activity was recorded, the time spent on the activity was not (Polit & Beck, 2017).

Data collection

Data were collected over two months from December 2015 to January 2016. Participants were observed performing care for older people who were identified as cognitively impaired. The research assistant observed care delivery from the hallway or doorway. Each nurse was observed caring for a person with cognitive impairment once. In order to get a good range of events in each ward, we aimed to observe nursing staff over a four hour period, during the time period when falls prevention was considered most important: 0700 - 1800. Two research assistants (RAs) were provided with seven hours of training to ensure data collected was both reliable and valid.

Data analysis

The data were entered into a Microsoft Excel® spreadsheet and then transferred to IBM SPSS AMOS version 22 for analysis. Demographic information about the nurses was reported as frequency and percentage. For the purpose of analysis, activities were grouped into six categories of nursing care (Berman et al., 2017): clinical care, comfort, social engagement, mobility, nutrition and hydration, and elimination. Initially, activities were analysed descriptively, counting the number of times an activity was undertaken, not undertaken but deemed by the observer to be required, and not required (not applicable). Then, all 'not applicable' data were removed and adherence was calculated as a percentage, using the number of times nurses enacted the care behaviour divided by the total number of times the behaviour was deemed to be required.

Ethics

Nursing staff members who agreed to participate provided written informed consent. The [name] health service (15/QGC/108) and the [name] university (NRS/31/15/HREC) Human Research Ethics Committees approved the study.

RESULTS

Forty-one participants, consisting of 19 registered nurses, 6 enrolled nurses and 16 assistants in nursing, were observed for a total of 155 hours of observation. Approximately half the observations involved registered nurses (Table 1). Table 2 shows the type of staff observed by ward.

[Insert table 1 here]

[Insert Table 2 here]

Adherence to the targeted activities, grouped into six categories, is described in Table 3. Two categories of activities had higher adherence: nutrition and hydration (i.e., ensures eats meals and takes fluids) and mobilisation safety (e.g., checking floor, low beds, mobility aids, bed brakes locked, adequate lighting). Adherence was lower for activities in the clinical, comfort and elimination categories. Specific activities with relatively low adherence included providing education about falls risk, evening settling routine, pain assessment, using a clock or calendar to re-orient to time and place, and bowel care. While evening settling was low, the number of observations was also low.

[Insert Table 3 here]

DISCUSSION

Missing fundamental nursing activities has been attributed to the taken-for-granted nature of those activities (Kalisch et al., 2012). However, this study found that key fundamental activities in nutrition and hydration, use of hearing aid, include family member, and assistance with elimination were seldom missed. Hourly rounding, a key activity for both falls prevention and care of older people with cognitive impairment, was frequently enacted, with 86% adherence. There were some key differences in this study, compared to those in the landmark international study of nursing care left undone (Ausserhofer et al., 2014). The international study of 33,659 nurses in 488 hospitals across 12 European countries used nurses' self-report of care left undone (Ausserhofer et al., 2014) rather than direct observation.

Nurses in this study talked to the patients, with 76% adherence, compared with 52% of talking with patients left undone (Ausserhofer et al., 2014). While orientation to time and date had low adherence of 21%, this is attributed to non-routine use of wall clocks and calendars in this hospital. Social engagement and orientation to time and date are recognised as a key psychosocial prevention strategy for delirium (ACSQHC, 2016) and therefore important to achieve higher levels of engagement throughout the day.

We were surprised to find that adherence with comfort strategies was low, with pain assessment at 34% adherence. This is quite different to the low 10% of nurses claiming that pain management was left undone in the Ausserhofer and colleagues study (2014). While there are validated instruments to assess pain in people with cognitive impairment (Abbey et al., 2004; Warden, Hurley & Volicer, 2003), the lack of pain assessment in this population is a critical area requiring further investigation.

In the category of clinical care, adherence with education was 58%. This is consistent with the findings in the international study, where 40% of nurses claimed educating patients

and families was left undone (Ausserhofer et al., 2014). Like most Australian health services, there is a plethora of resources available to support falls prevention education in this service. However, the processes required to enact education provision for patients and families appears to be more difficult for nurses to align. There are few studies that have investigated how high quality falls prevention education resources are implemented in practice generally, and none that we could find for older people with cognitive impairment specifically. This is an important area for further investigation.

While mobility safety was high, mobility adherence, particularly walking, scored lower adherence, at 68%. Mobilisation was not explored in the Ausserhofer and colleagues (2014) study. Reduced mobility is associated with more falls in older inpatients (Harlein et al., 2011), and more falls have been associated with nurses not ambulating patients (Kalisch et al., 2012). While not ambulating patients may constitute missed care, it is also possible that non-ambulation is emerging as a falls circumvention strategy. It is possible that the taken-for-granted practice of labelling older patients as a 'falls risk', on the grounds of carrying several risk factors for falling, may shift from a person-centred focus, encouraging activity to maintain strength, to a risk avoidance focus, simply circumventing all falls by keeping the person safely in the bed or in a chair. Another possibility is that mobilisation has become the domain of other health professionals, such as the physiotherapist, and therefore some nurses may consider that ambulation is not a nursing responsibility. The lack of mobilisation of older people with cognitive impairment requires further investigation.

While assisting with elimination overall had good adherence, constipation assessment and management had relatively low adherence, 71% and 69% respectively and assess urinary continence was slightly higher, at 74% adherence. Constipation and urinary retention are known triggers for delirium in people with dementia (Inouye et al., 2014) and should be proactively managed. However, the management of constipation is challenging when older

people are in hospital, with limited ambulation and dietary, and sometimes, medication changes.

Reaction to internal stimuli of cramping abdominal pain, bloating, feeling as if a movement has not completely passed or urgency related to a full bladder can lead to impulsive related falls in older people with cognitive impairment (Ferrari et al., 2012). Impulsive related falls are due to unplanned reaction to internal or external stimuli without regard to the negative consequences of these reactions and characterised by greater motor activation, less attention and less planning (Moeller, Barratt, Dougherty, Schmitz & Swann, 2001). Therefore, a sense of urgency associated with elimination can lead to impulsivity-related falls in older people with cognitive impairment.

This study was focused on nurses' enactment of the activities recommended in evidence-based guidelines for the prevention of falls and care of older people with cognitive impairment. While there were high levels of adherence with some activities, others had much lower levels. The structured observation technique has provided a method for gathering important information about what activities are more stable, and routinely enacted. It also highlights those activities that require further investigation, specifically pain assessment, patient and family education, mobility, and elimination. Each of these activities require alignment of multiple human and non-human elements such as other members of the interdisciplinary team, assessment tools, medications, equipment to enable rapid and safe access to a toilet, and more.

The traditional response to study findings such as these is to recommend more education (Enns et al., 2014; Hill et al., 2015) or more qualified staff (Ausserhofer et al., 2014). However, we suggest that further investigation into the arrangements necessary for the alignment of multiple elements required to enact practice consistently, and in a variety of highly localised situations, is required. Like the study of airline pilots (Carim et al., 2017), the

use of evidence-based guidelines is likely only one element that is aligned into a stable practice in each the observed 41 unique care situations. Further research into the contingencies that disrupt the arrangements for falls prevention activities in older patient with cognitive impairment is required. While missing one of these activities once per shift may seem minor, and would not negatively affect most patients, when activities are missed over several shifts, or several practices are missed in one shift, the risk of falling rises. While multicomponent interventions are recommended (Fonda et al., 2006; Healey et al., 2014), understanding the processes that nurses use to align the available resources to enact those activities is critical. When alignment of resources cannot be achieved, guideline implementation can fail (Milisen et al., 2013).

LINKING EVIDENCE TO ACTION

- Explore the local negotiations within the multidisciplinary team that are required to ensure that care is not missed.
- Carefully consider multiple guidelines and how they are used to tailor individualised care.
- Create a practical, and interdisciplinary, guide for preventing in-hospital falls in older people with cognitive impairment.
- Develop strategies to implement pain assessment specific to people with cognitive impairment.
- Aggressively manage constipation, inclusive of quality nutrition and mobilisation.

Limitations

In this study, the nursing activities were not associated with, or linked to, fall rates, nor were the practices of other health professionals observed. We were interested in the nursing activities known to maintain safety for older people with cognitive impairment.

However, other health professionals such as allied health therapists also carry responsibility for some of these activities. Because the focus of observations was on the nurses' practice, it may be that the missed care for mobilisation or cognitive assessment was carried out by other allied health therapists or their assistants.

While the convenience sampling method used in this study enabled gathering data in a short time period, it does introduce the possibility of bias, with an over or under representation of specific groups of participants (Polit & Beck, 2017). Rather than suggest that these findings are generalisable, it raises important considerations in the care of older patients with cognitive impairment and the need for further research in this area of practice.

While the short four-hour time blocks were distributed across most of the day, it is possible that care activities undertaken during more intimate activities, such as during toileting and bathing, may have occurred but were not observed. Further studies in this population may require observation of more intimate activities and inclusion of activities undertaken with staff other than nurses. Further, the possibility that patients' condition may change, we may not have captured all practices.

IMPLICATIONS FOR FUTURE RESEARCH

We suggest that the narrative for falls prevention in older people with cognitive impairment should shift from emphasising the importance of implementing activities that are sourced from evidence-based guidelines to focusing on how guidelines are used in combination with other elements in highly localised and unique situations to enact practice. Exploring the other elements, both human and non-human, that are actively arranged to make certain activities more consistently enacted can provide fresh insights into a significant and rising problem for patients, families and health services. This work could start with three

specific areas where there was low adherence to recommended activities: pain assessment, promoting mobility and elimination management.

CONCLUSIONS

The availability of multiple guidelines indicates international agreement around how to prevent falls and how to care for an older person with cognitive impairment in hospital. However, there is no single guide on how to prevent falls in older people with cognitive impairment. Further there is little guidance on how to implement these guidelines. It is timely to reconsider taken-for-granted nursing practices as activities that occur in complex arrangements of non-human and human elements to become stable practices. Further, practical guidelines to prevent falls for the specific population of older people with cognitive impairment could be developed, recognising that they are one resource for nurses. Specifically, further investigation into pain assessment and management of elimination in hospitalised older patients is required. Using the resources available, and understanding how the alignment of resources is achieved to routinely produce practice in highly localised settings, can lead to negotiations around responsibility for fundamental care practices for older people with cognitive impairment and ensure that such care is not missed.

References

Abbey, J., Piller, N., De Bellis, A., Esterman, A., Parker, D., Giles, L., & Lowcay, B., 2004. The Abbey pain scale: a 1-minute numerical indicator for people with end-stage dementia. *International Journal of Palliative Nursing 10*(1): 6-13.

Adams, C.L., Scruth, E.A., Andrade, C., Maynard, S., Snow, K., Olson, T.L., … & Cheng, E., 2015. Implementing clinical practice guidelines for screening and detection of delirium in a 21-hospital system in northern California: real challenges in performance improvement. *Clinical Nurse Specialist 29*(1), 29-37.

Ausserhofer, D., Zander, B., Busse, R., Schubert, M., De Geest, S., Rafferty, A.M., … & RN4CAST Consortium, 2014. Prevalence, patterns and predictors of nursing care left undone in European hospitals: results from the multicountry cross-sectional RN4CAST study. *BMJ Quality & Safety 23*(2), 126-135.

Australian Commission for Safety and Quality in Health Care [ACSQHC], 2009. *Preventing Falls and Harm from Falls Best Practice Guidelines for Australian Hospitals*. Sydney: ACSQHC.

Australian Commission for Safety and Quality in Health Care [ACSQHC], 2014. *A Better Way to Care: Safe and High Quality Care for Patients with Cognitive Impairment (Dementia and Delirium) in Hospital – Actions for Clinicians*. Sydney: ACSQHC.

Australian Commission on Safety and Quality in Health Care [ACSQHC], 2016. *Delirium Clinical Care Standard*. Sydney: ACSQHC.

Australian Institute of Health and Welfare {AIHW], 2017. *Hospital resources 2015-16: Australian hospital statistics*. Health services series no. 78. Cat. No. HSE 190. Canberra: AIHW.

Bail, K., Berry, H., Grealish, L., Draper, B., Karmel, R., Gibson, D., & Peut, A., 2013. Potentially preventable complications of urinary tract infections, pressure areas,

pneumonia, and delirium in hospitalised dementia patients: Retrospective cohort study. *BMJ Open, 3*:e002770.

Bail K. & Grealish L., 2016. 'Failure to Maintain': A theoretical proposition for a new quality indicator of nurse care rationing for complex older people in hospital. *International Journal of Nursing Studies*, *63*, 146-161.

Berman, A., Snyder, S., Frandsen, G., Levett-Jones, T., Dwyer, T., Hales, M., … & Stanley, D. (eds), 2017. *Kozier and Erb's Fundamentals of Nursing volumes 1-3 (4e*), Pearson:

Burston, S., Chaboyer, W., & Gillespie, B., 2014. Nurse-sensitive indicators suitable to reflect nursing care quality: a review and discussion of the issues. *Journal of Clinical Nursing 23*(13-14), 1785-1795.

Carim, G.C., Saurin, T.A., Havinga, J., Rae, A., Dekker, S.W.A., & Henriqson, E., 2017. Using a procedure doesn't mean following it: a cognitive systems approach to how a cockpit manages emergencies. *Safety Science 89*, 147-157.

Chaboyer, W., Wallis, M., Duffield, C., Courtney, M., Seaton, P., Holzhauser, K., Schluter, J., & Bost, N., 2008. A comparison of activities undertaken by enrolled and registered nurses on medical wards in Australia: an observational study. *International Journal of Nursing Studies 45*(9), 1274-1284.

D'Amour, D., Dubois, C., Tchouaket, E., Clarke, S., & Blais, R., 2014. The occurrence of adverse events potentially attributable to nursing care in medical units: cross sectional record review. *International Journal of Nursing Studies 51*(6), 882-891.

Dempsey, J., 2009. Nurses values, attitudes and behaviour related to falls prevention. *Journal of Clinical Nursing 18*(6), 838-848.

Duffield, C., Diers, D., O'Brien-Pallas, L., Aisbett, C., Roche, M., King, M., & Aisbett, K., 2011. Nursing staffing, nursing workload, the work environment and patient outcomes. *Applied Nursing Research 24*(4), 244-255.

Enns, E., Rhemtulla, R., Ewa, V., Fruetel, K., & Holroyd-Leduc, J.M., 2014. A controlled quality iprovement trial to reduce the use of physical restraints in older hospitalised adults. *Journal of the American Geriatric Society 62*(3), 541-545.

Ferrari, Harrison, B., & Lewis, D., 2012. The risk factors for impulsivity-related falls among hospitalized older adults. *Rehabilitation Nursing 37*(3), 145-150.

Fonda, D., Cook, J., Sandler, V., & Bailey, M., 2006. Sustained reduction in serious fall-related injuries in older people in hospital. *Medical Journal of Australia 184*(8), 379-82.

Guideline Adaptation Committee, 2016. *Clinical Practice Guidelines and Principles of Care for People with Dementia*. Sydney: Guideline Adaptation Committee.

Harlein, J., Dassen, T., Halfens, R.J.G., & Heinze, C., 2009. Fall risk factors in older people with dementia or cognitive impairement: a systematic review. *Journal of Advanced Nursing 65*(5), 922-933.

Healey, F., Lowe, D., Darowski, A., Windsor, J., Treml, J., Byrne, L., Husk, J., & Phipps, J., 2014. Falls prevention in hospitals and mental health units: an extended evaluation of the FallSafe quality improvement project. *Age & Ageing 43*(4), 484-91.

Hignett, S., Sands, G., & Griffiths, P., 2013. In-patient falls: what we can learn from incident reports? *Age and Ageing 42*(4), 527-531.

Hill, A., McPhail, S.M., Waldron, N., Etherton-Beer, C., Ingram, K., Flicker, L., Bulsara, M., & Haines, T.P., 2015. Fall rates in hospital rehabilitation units after individualised patient and staff education programmes: a pragmatic stepped wedge cluster randomised controlled trial. *Lancet 385* (9987), 2592-2599.

Inouye, S.K., Westendorp, R.G.J., & Sacynski, J.S., 2014. Delirium in elderly people. *Lancet 383* (9920), 911-922.

Ireland, S., Kirkpatrick, H., Boblin, S., & Robertson, K., 2013. The real world journey of implementing fall prevention best practices in three acute care hospitals: a case study. *Worldviews on Evidence-Based Nursing 10*(2), 95-103.

Kalisch, B.J., Tschannen, D., & Lee, K.H., 2012. Missed nursing care, staffing and patient falls. *Journal of Nursing Care Quality 27*(1), 6-12.

Kalisch, B.J., Xie, B., & Dabney, B.W., 2014. Patient-reported missed nursing care correlated with adverse events. *American Journal of Medical Quality 29*(5), 415-422.

Law, J., 1994. *Organising Modernity*. Cambridge, MA and Oxford: Blackwell.

Milisen, K., Coussement, J., Arnout, H., Vanlerberghe, V., De Paepe, L., Schoevaerdts, D., …& Dejaeger, E., 2013. Feasibility of implementing a practice guideline for fall prevention on geriatric wards: a multicentre study. *International Journal of Nursing Studies 50*(4), 495-507.

Moeller, F.G., Barratt, E.S., Dougherty, D.M., Schmitz, J.M., & Swann, A.C., 2001. Psychiatric aspects of impulsivity. *American Journal of Psychiatry 158*(11), 1783-1793.

Montalvo, I., 2007. "The National Database of Nursing Quality IndicatorsTM (NDNQI®)'. *OJIN: The Online Journal of Issues in Nursing 12*(3), manuscript 2.

National Institute for Health and Care Excellence [NICE], 2010. *Delirium: prevention, diagnosis and management*. nice.org.uk/guidance/cg103

National Institute for Health and Care Excellence [NICE], 2013. *Falls in older people: assessing risk and prevention: clinical guideline*. nice.org.uk/guidance/cg161

National Institute for Health and Care Excellence [NICE], 2016. *Dementia: supporting people with dementia and their carers in health and social care*. nice.org.uk/guidance/cg42

Oliver, D., 2012. Managing risk in older hospital inpatients. *Clinical Risk 18*: 161-162.

Panel on Prevention of Falls in Older Persons, American Geriatrics Society and British Geriatrics Society, 2011. Summary of the updated American Geriatrics Society/ British Geriatrics Society clinical practice guideline for prevention of falls in older persons. *Journal of the American Geriatrics Society 59*(1), 148-157.

Polit, D. & Beck, C.T., 2017. *Nursing Research: Generating and Assessing Evidence for Nursing Practice 10e*. Wolters Kluwer: China.

Prince, M., Comas-Herrara, A., Knapp, M., Guerche, M., & Karagiannidou, M., 2016. *World Alzheimer Report 2016. Improving healthcare for people living with dementia: coverage, quality and costs now and in the future*. London: Alzheimer's Disease International.

Stalpers, D., de Brouwer, B.J.M., Kaljouw, M.J., & Schuurmans, M.J., 2015. Associations between characteristics of the nurse work environment and five nurse-sensitive patient outcomes in hospitals: a systematic review of literature. *International Journal of Nursing Studies 52*(4), 817-835.

Suchman, L., 2007. *Human-Machine Reconfigurations: Plans and Situated Actions 2e*. New York: Cambridge University Press.

Thornlow, D., Anderson, R., & Oddone, E., 2009. Cascade iatrogenesis: factors leading to the development of adverse events in hospitalised older adults. *International Journal of Nursing Studies 46*(11), 1528-1535.

Warden V, Hurley AC, & Volicer L., 2003. Development and Psychometric Evaluation of the Pain Assessment in Advanced Dementia (PAINAD) Scale. *Journal of American Medical Directors Association 4*(1), 9-15.

Yevchak, A.M., Fick, D.M., McDowell, J., Monroe, T., May, K., Grove, L., … & Inouye, S.K., 2014. Barriers and facilitators to implementing delirium rounds in a clinical trial across three diverse hospital settings. *Clinical Nursing Research 23*(2), 201-215.

Table 1 Nurse Demographics

Characteristic	Number (%)
Total	41 (100)
Age, mean (SD)	41.5 (14.9)
Qualification	
Register Nurse (RN)	19 (46.3)
Enrolled Nurse (EN)	6 (14.6)
Assistant in Nursing (AIN)	16 (39.1)
Gender	
Female	35 (85.4)
Training in Cognitive Impairment	
No	29 (70.7)

Table 2 Nurse type and ward

	Ward A	Ward B	Ward C
Registered nurse	7	7	5
Enrolled nurse	1	4	1
Assistant in nursing	5	6	5
Total	13	17	11

Table 3. Observed behaviours

Behaviour	Yes N	Applicable N	Adherence (%)
Clinical care			
Hourly rounding	32	37	86
Provide patient/family education about falls risk e.g. DVD or brochure	11	19	58
Share falls risk at handover	28	35	80
Assess for cognitive impairment	32	40	80
Comfort			
Psychosocial setting (evening) e.g. warm milk or massage	2	3	67
Check belongings within reach	30	40	75
Check buzzer in reach	25	41	61
Pain is assessed	13	38	34
Social engagement			
Correctly apply hearing aid	6	6	100
Talk with family/ care giver	7	7	100
Correctly apply glasses	14	18	78
Social conversation	31	41	76
Re-orient using clock or calendar	8	38	21
Mobility			
Check floor area is free of clutter	41	41	100
Provide low or floor bed	41	41	100
Check mobility aid within reach	13	15	87
Check bed brakes are locked	39	41	95
Check adequate lighting	38	41	93
Correctly uses walking aid	19	23	83
Turn on bed alarm	8	14	57
Non-slippery shoes provided before walking	26	35)	74
Mobilise (walk)	26	38	68
Nutrition & hydration			
Correctly fit dentures	19	19	100
Dentures provided before meals	29	20	100
Offer/provide preferred food	40	41	100
Provide (ensure eats) meals	38	40	95
Provide (ensures takes) fluids	37	40	93
Elimination			

Behaviour	Yes N	Applicable N	Adherence (%)
Assist with elimination	32	37	86
Assess urinary continence	29	39	74
Assess for constipation	29	41	71
Acts to reduce constipation	22	32	69